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Psychometric Testing of a Cross-Culturally Adapted Reintegration to Normal Living Index Scale for Igbo Stroke Survivors – A Preliminary Investigation

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Stroke is a major cause of long-term disability and the second leading cause of death globally. Majority of stroke survivors (SS) have varying degrees of disability that restrict their community reintegration (CR). The Reintegration to Normal Living Index (RNLI) is a good measure for assessing CR, but cannot be used by Non-English Speaking SS and thus the need to cross-culturally adapt it for Igbo-Speaking SS. This study assessed the validity and reliability of a back translated Igbo version of RNLI. A total of 40 participants involving 20SS and 20 age- and sex-matched normal subjects completed an Igbo version of the RNLI. The internal consistency and test-retest reliability of the Igbo translated RNLI tool were assessed using cronbach-α and Spearman correlation respectively while the construct and criterion-related validities were evaluated using independent t-test and Spearman correlation respectively. Level of significance was set at α = 0.05. The items of the RNLI instruments, demonstrated excellent internal consistency with a Cronbach's alphas of 0.90. The RNLI Igbo version had a weak test-retest reliability (r = 0.325, p = 0.162) and its criterion-related validity was also weak (r =0.421, p = 0.065). However, the instrument had an excellent construct validity (t = 14.801, p<0.001). This Igbo translated version of the RNLI tool may be useful for assessing CR among stroke survivors but is a weak version of the original English RNLI. A more robust approach using larger sample size is recommended.

Key words: Community Reintegration, Igbo, Reintegration to Normal Living Index, Psychometric Testing, Stroke Survivors

INTRODUCTION

Stroke is the leading cause of death as well as adult disability globally (Zimmermann-Schlatter et al, 2008). In Nigeria, Stroke is a major cause of neurological admissions and its incidence has been on the increase (Pollack and Disler, 2002; Ekechukwu et al, 2020; Owolabi et al, 2020) as a result of the increasing risk factors. However, many stroke victims now survive possibly due to the improved medical care

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(Obembe et al, 2010). Returning back to the pre-injury life style into the society usually after post stroke in-hospital discharge has been referred to as community reintegration and this is an important goal of stroke rehabilitation (Hamzat et al, 2014). However, the physical and psychosocial impairments, activity limitations and participation restrictions that are found among most community dwelling stroke survivors in Nigeria constitute major barriers to complete community reintegration of these cohorts (Panella et al, 2008; Hamzat and Ekechukwu, 2015). Stroke can be devastating to both the individual as well as his/her family members, and there are both functional and economic dimensions of community reintegration such as return to driving and return to work. Therefore, A major goal of stroke management includes facilitation of functional independence and reintegration into their communities (Mayo et al, 2000). One of the most crucial elements of stroke rehabilitation and likely the most underestimated area is their reintegration to normal living. It is considered to be the ultimate aim of a successful stroke rehabilitation programme (Bourdeau et al, 2008). Regardless of regions in the world, the concept associated with reintegration to normal pattern of social and community life is one of the key ideas in rehabilitation (Ekechukwu et al, 2017a). Numerous international rehabilitation scholars have identified the importance of social and community reintegration to the wellbeing of stroke survivors (Hamzat and Peters, 2009; Obembe et al, 2013; Ekechukwu et al, 2017b). Some other researchers found that higher independence in activities of daily living; functional mobility and better cognitive function were associated with increased reintegration to normal living (Liu et al, 2015; Okonkwo et al, 2018). The concept of community reintegration is reportedly culture and environment-specific as its meanings and interpretations can vary with races, groups, disabilities, age groups, social roles and cultures (Corrigan and Bogner, 2008; Sander et al, 2010). From empirical observations, these variations in the components and interpretations of community are more obvious when comparing developed and developing countries as their cultures and environments vary markedly. These variations can be seen in buildings and living arrangements; popular means of transportation; recreational activities; social activities; work life; family arrangement and roles; et cetera. Consequently, there are needs for availability of the Igbo culture and environment-specific tools for the assessment of reintegration to normal living during stroke rehabilitation (Griffen et al, 2010; Pang et al, 2011). The Igbo language is spoken by over 24million people across Nigeria and the community is predominantly found in the South-eastern region of the country around the Equatorial Guinea (Strahan and Bauer, 2009). Reintegration to normal living index is an 11 declarative statement tool designed to assess quantitatively the degree to which individuals who have experienced traumatic or incapacitating illness achieve reintegration into normal social activities (e.g recreation, movement in the community and interaction in family or other relationships (Wood-Dauphinee and Williams, 1987). Cross-cultural adaptation of the RNLI tool is highly recommended, as it may not be entirely suitable for use in low and middle income, medically-less developed countries thus making proper assessment of community reintegration difficult. Relative to this, there is need for the availability of the Igbo language translated version of this tool specific for stroke survivors, so as to encourage proper assessment of community reintegration post-stroke. Hence this study was designed to develop an Igbo version of RNLI for stroke survivors as well as test its psychometric properties.

METHODS

Participants

This study is a cross-sectional survey, involving 40 participants, 20 community-dwelling stroke survivors (recruited from tertiary hospitals in Enugu, South-east, Nigeria), and 20 other community-dwelling age- and sex-matched normal individuals as control. Subjects were recruited using purposive sampling technique and participated only if (i) they had no other neurological condition that could influence reintegration other than stroke, (ii) were able to communicate in English and Igbo languages conveniently and (iii) were community-dwelling adults.

Reintegration to Normal Living Index (RNLI) Scale

Community reintegration was assessed using the RNLI. The reintegration to normal living index was developed to asses quantitatively the degree to which individuals who have experienced traumatic or incapacitating illness such as stroke achieve reintegration into normal social activities (e.g. recreation, movement in the community and interaction in family or other relationships (Wood-Dauphinee and Williams, 1987). The RNLI is made up of 11 declarative statements (e.g., I move around my living quarters as I feel necessary), with the following themes: indoor, community and distance mobility; self-care; daily activities (work and school); recreational and social activities; family roles; personal relationships; presentation of self to others and general coping skills. Participants were asked how much they agreed with each item. Each item was rated with a 4-point ordinal scale (1 = does not describe my situation; 2 = describes my situation a little; 3 = describe my situation a lot; 4 = fully describe my situation) with higher scores indicating a higher level of satisfaction. The scores for each item were summed, with a score of 44 indicating that the participants were fully satisfied, scores of 11 indicating severe restrictions in self perceived community reintegration (Wood-Dauphinee and Williams, 1987).

Procedure

Ethical clearance was sought and obtained from the Research and Ethics Committee of the University of Nigeria Teaching Hospital, Enugu. Informed consent of all the participants were duly obtained. Forward and back translations were done by two Linguists from the department of Nigeria and African Languages, University of Nigeria. The consensus back translation into the original language was

Table 1: Descriptive Analysis of the clinical and demographic data of participants (N = 40).

			Frequency	Percentage
Stroke	Sex	Male	24	60
		Female	16	40
	Age	45-49	6	15
		50-54	2	5
		55-59	10	25
		60-64	10	25
		65-69	8	20
		70-74	4	10
	Type of Stroke	Ischaemic	14	70
		Haemorrhagic	6	30
	Side of Stroke	Left	12	60
		Right	8	40
	Duration of Stroke	≤ 2 years	8	35
		3 -4 years	9	45
		≥ 5 years	1	5
		Unknown	2	10
	Duration of PT	≤ 3 months	6	30
		4 – 7 months	8	40
		≥ 8 months	6	30

done by two independent translators who were blinded to the forward translation. Thereafter, the English and Igbo versions were first administered to the stroke participants with stroke, while control only received the Igbo version. The Igbo RNLI retest was done after a washout period of two weeks.

Data Analysis

The data were analyzed using the SPSS software suit version 21. Descriptive statistics of frequency and percentages were used to summarise the demographic and clinical variables of the participants. Internal consistency and test-retest reliability were evaluated using Cronbach's alpha coefficient and Spearman's correlation coefficients respectively. Also, Spearman's correlation coefficient and independent t-test were used to establish the criterion-related and construct validities of the Igbo translated version of RNLI. The level of significance was set at $\alpha = 0.05$.

RESULTS

Characteristics of the Participants

Majority of the participants in this study were male (60%), and between 55 – 69 years (70%). Among the stroke survivors, most of them had ischaemic type of stroke (70%) predominantly on the left sides of their bodies (60%), most of who had had the condition for about 3-4 years (45%) and had received physiotherapy for about 4 – 7 months (40%) as shown in Table 1.

Test-Retest Reliability

The test-retest reliability of the Igbo translated version of the RNLI instruments was determined by correlating the scores obtained on two consecutive administrations of the instruments using Spearman correlation coefficient. There was a weak correlation between the tests of the translated instruments ($r = 0.325$, $p = 0.162$) with no significant differences ($t = 1.281$, $p = 0.216$) in these values as shown in Table 2.

Criterion-Related Validity

There was a weak correlation coefficient between the English version and the Igbo translated version of the RNLI instrument ($r = 0.421$, $p = 0.065$), although there was no significant difference in these scores as shown in Table 3.

Construct validity

The construct validity of the Igbo translated version of the RNLI scale was confirmed by comparing the scores of stroke survivors and the participants without stroke (matched control) on the scale. The participants with stroke had significantly higher scores than those without stroke ($t=14.801$, $p <0.001$) as shown in Table 4.

DISCUSSION

This study assessed the psychometric properties of a cross-culturally adapted reintegration to normal living

Table 2. Test-retest reliability of the Igbo translated version of RNLI (n=40)

Variable	No.	Means(SD)		r (p-value)	t (p-value)
		Test	Retest		
Reintegration to Normal Living Index	40	16.6 (5.60)	14.75 (5.51)	0.325 (0.162)	1.281 (0.216)

Table 3: Correlation between the Igbo translated version of the RNLI and the English version (N = 40)

Variable	No.	Means (SD)		R (p-value)	t (p-value)
		English Version	Igbo Version		
Reintegration to Normal Living Index	40	15.55 (6.10)	16.6 (5.60)	0.421 (0.065)	0.571 (0.575)

Table 4: Independent sample t-test for comparison of scores of participants with stroke and without stroke obtained on the Igbo translated version of the RNLI instrument

Variable	Stroke Patients X±SD	Matched Control X±SD	t-value	p-value
Reintegration to Normal Living Index	16.6 ± 5.60	33.00 ± 0.10	14.801	P <0.0001

index scale for Igbo stroke survivors. Sex distribution of the participants in this study indicated a male preponderance, and this is in correspondence with the findings from previous studies (Falcone and Chong, 2007; Lin et al, 2010; Lin et al, 2011; Akinpelu et al, 2012; Chen et al, 2012). Majority of the stroke survivors in this study were above 54years. From this report, it affirms that stroke is an ageing disorder that appears to crepe down gradually to the middle age. These findings support the earlier reports that stroke affect people in their middle age (Lima et al, 2008; Lynch et al, 2008; Boosman et al, 2010; Hamzat et al, 2014). Although stroke risk increases with age, stroke can occur at any age (Smajlović, 2015) while time from stroke varies considerably among the survivors. Among the stroke survivors, most of them had ischemic type of stroke, similar to the report of Andersen et al (Anderesen et al, 2009) that also reported ischemicstroke to be more frequent than haemorrhagic stroke. Also, the study by Ekechukwu et al, (2017b) on the Clinical and Psychosocial Predictors of Community Reintegration of Stroke Survivors also reported ischaemic stroke to be more frequent. In contrast to the study by Hedna et al, (2013) among American stroke survivors, left hemiplegia was reported to be predominant in this study. The disparity may be attributed to racial factors. Igbo Language is commonly spoken in the south-eastern states, in the north-east of Delta state and in the south-east of Rivers state by over 18million people of Nigerian population (Slattery, 2010; Odetunde et al, 2020) aside other parts of the world, and is one of the three major languages spoken by 21% of the population. The cross-cultural adaptation of RNLI into Igbo language in this study revealed a one-step back translation of Igbo version of RNLI which was in tandem with the English version. The stage of back-translation served as validity check for the entire process while the stage of test-retest ensured complete equality between target and source language. Previous researchers have also found back translation worthwhile (Muus and Ringsberg, 2005; Cruz-Cruz et al, 2013). The result obtained from this study, showed that there was a weak correlation between the scores obtained on the Igbo RNLI version (I-RNLI) on two periods of administration. This suggests that the I-RNLI instrument demonstrated weak test-retest reliability not consistent. It could be inferred that the items on the I-RNLI were possibly not well understood by the participants as this differed markedly from the report by Okoye et al (2019) that reported a good reliability among heterogeneous persons with mobility disability. They reported that all the participants involved in the protesting and cognitive debriefing interview displayed clear understanding of all the items on their scale. On the other hand, this finding is in line with the study carried out by Liu and Ma (2017) on the psychometric properties of the Chinese version RNLI for identifying participation restriction among community dwelling frail older people that reported moderate test-retest reliability. The findings of this study further revealed a weak criterion-related validity as there was a weak correlation coefficient between the English version and the Igbo translated version of the RNLI. This may be due to the small sample size used in this study. This differs from the findings of the study carried out by Daneski et al (2004) on the reliability and validity of a Postal version of the RNLI, modified for use with stroke patients. Their study had a larger sample size and showed a good reliability and a

good validity of the modified scale. It is therefore recommended that a similar study with larger sample size and power be conducted to verify this.

The construct validity of the I-RNLI scale was confirmed by comparing the scores of stroke survivors and the control participants. The study revealed that the participants with stroke had significantly lower scores than their age- and sex-matched control. These results therefore showed that the I-RNLI version has excellent construct validity and may be useful for assessing community reintegration among stroke survivors given that it can distinguish participation restriction between stroke from non-stroke survivors. This report is in consonance with the findings from previous studies in China (Liu and Ma 2017).

Summarily, these findings highlight the potential importance of cross-cultural adaptations of the RNLI scale as a valid tool. Similar to the report by Akinpelu et al, (2012) that many of the patients attending physiotherapy outpatient clinics in south-western Nigeria do not understand English, this may certainly be true for South-Eastern Nigeria as well. Hence the Igbo version of this instrument may be useful pending a more robust study on a larger sample.

Conclusion

Although the cross-culturally adapted Igbo version of RNLI had an excellent construct validity and internal consistency, they showed weak test-retest reliability and criterion related validity. It is recommended that psychometric testing of this tool be performed on a larger sample.

REFERENCES

Akinpelu AO, Odetunde MO, Odole AC (2012). Cross-cultural adaptation and initial validation of the Stroke-Specific Quality of Life Scale into the Yoruba language. International Journal of Rehabilitation Research 35(4):339-344.

Anderesen, K. and Olsen, T.S., C. Dehlendorff.(2009). Hemorrhagic and ischemic strokes compared. Stroke, 40, pp.2068-72.

Boosman, H., Passier, P.E., Visser-Meily, J.M., Rinkel, G.J. and Post, M.W., 2010. Validation of the Stroke Specific Quality of Life scale in patients with aneurysmal subarachnoid haemorrhage. Journal of Neurology, Neurosurgery & Psychiatry, 81(5), pp.485-489.

Bourdeau, I., Desrosiers, J. and Gosselin, S., 2008. Predictors of reintegration to normal living in older adults discharged from an intensive rehabilitation program. International Journal of Rehabilitation Research, 31(4), pp.267-274.

Chen, H.F., Wu, C.Y., Lin, K.C., Li, M.W. and Yu, H.W., 2012. Validity, reliability and responsiveness of a short version of the stroke-specific quality of life scale in patients receiving rehabilitation. Journal of rehabilitation medicine, 44(8), pp.629-636.

Corrigan, J.D. and Bogner, J.A., 2008. Neighborhood characteristics and outcomes after traumatic brain injury.

Archives of physical medicine and rehabilitation, 89(5), pp.912-921.

Cruz-Cruz, C., Martinez-Nuñez, J.M., Perez, M.E., Kravzov-Jinich, J., Ríos-Castañeda, C. and Altagracia-Martinez, M., 2013. Evaluation of the stroke-specific quality-of-life (SSQOL) scale in Mexico: A preliminary approach. Value in health regional issues, 2(3), pp.392-397.

Daneski, K., Coshall, C., Tillingand, K. and Wolfe, C.D.A., 2003. Reliability and validity of a postal version of the Reintegration to Normal Living Index, modified for use with stroke patients. Clinical rehabilitation, 17(8), pp.835-839.

Ekechukwu, E.N.D., Ikrechero, J.O., Ezeukwu, A.O., Egwuonwu, A.V., Umar, L. and Badaru, U.M., 2017a. Determinants of quality of life among community dwelling persons with spinal cord injury: A path analysis. Nigerian journal of clinical practice, 20(2), pp.163-169.

Ekechukwu, E.N.D., Olowoyo, P., Nwankwo, K.O., Olaleye, O.A., Ogbodo, V.E., Hamzat, T.K. and Owolabi, M.O., 2020. Pragmatic Solutions for Stroke Recovery and Improved Quality of Life in Low-and Middle-Income Countries—A Systematic Review. Frontiers in Neurology, 11, p.337.

Ekechukwu, N., Olaleye, O. and Hamzat, T., 2017b. Clinical and psychosocial predictors of community reintegration of stroke survivors three months post in-hospital discharge. Ethiopian journal of health sciences, 27(1), pp.27-34.

Falcone, G. and Chong, J.Y., 2007. Gender differences in stroke among older adults. Geriatrics and Aging, 10(8), pp.497-500.

Griffen, J.A., Hanks, R.A. and Meachen, S.J., 2010. The reliability and validity of the Community Integration Measure in persons with traumatic brain injury. Rehabilitation Psychology, 55(3), p.292.

Hamzat, T.H.K. and Ekechukwu, N.E., 2015. Aerobic exercise training in stroke rehabilitation: Any gap in knowledge. Nigerian Journal of Medical Rehabilitation, 18(1), https://doi.org/10.34058/njmr.v18i1.111

Hamzat, T.K. and Peters, G.O., 2009. Motor function and participation among Nigerian stroke survivors: 6-month follow-up study. NeuroRehabilitation, 25(2), pp.137-142.

Hamzat, T.K., Ekechukwu, N.E. and Olaleye, A.O., 2014. Comparison of community reintegration and selected stroke specific characteristics in Nigerian male and female stroke survivors. African Journal of Physiotherapy and Rehabilitation Sciences, 6(1-2), pp.27-31.

Hamzat, T.K., Olaleye, O.A. and Akinwumi, O.B., 2014. Functional ability, community reintegration and participation restriction among community-dwelling female stroke survivors in Ibadan. Ethiopian journal of health sciences, 24(1), pp.43-48.

Hedna, V.S., Bodhit, A.N., Ansari, S., Falchook, A.D., Stead, L., Heilman, K.M. and Waters, M.F., 2013. Hemispheric differences in ischemic stroke: is left-hemisphere stroke more common?. Journal of clinical neurology (Seoul, Korea), 9(2), p.97.

Lima, R.C.M., Teixeira-Salmela, L.F., Magalhaes, L.C. and Gomes-Neto, M., 2008. Psychometric properties of the Brazilian version of the Stroke Specific Quality of Life Scale: application of the Rasch model. Brazilian Journal of Physical Therapy, 12(2), pp.149-156.

Lin, K.C., Fu, T., Wu, C.Y. and Hsieh, C.J., 2011. Assessing the stroke-specific quality of life for outcome measurement in stroke rehabilitation: minimal detectable change and clinically important difference. Health and quality of life outcomes, 9(1), pp.1-8.

Lin, K.C., Fu, T., Wu, C.Y., Hsieh, Y.W., Chen, C.L. and Lee, P.C., 2010. Psychometric comparisons of the stroke impact scale 3.0 and stroke-specific quality of life scale. Quality of Life Research, 19(3), pp.435-443.

Liu, J.Y.W. and Ma, K.W., 2017. The psychometric properties of the Chinese version—reintegration to normal living index (C-RNLI) for identifying participation restriction among community-dwelling frail older people. BMC geriatrics, 17(1), pp.1-10.

Liu, T.W., Ng, S.S., Kwong, P.W. and Ng, G.Y., 2015. Fear avoidance behavior, not walking endurance, predicts the

community reintegration of community-dwelling stroke survivors. Archives of physical medicine and rehabilitation, 96(9), pp.1684-1690.

Lynch, E.B., Butt, Z., Heinemann, A., Victorson, D., Nowinski, C.J., Perez, L. and Cella, D., 2008. A qualitative study of quality of life after stroke: the importance of social relationships. Journal of rehabilitation medicine, 40(7), pp.518-523.

Mayo, N.E., Wood-Dauphinee, S., Côté, R., Gayton, D., Carlton, J., Buttery, J. and Tamblyn, R., 2000. There's no place like home: an evaluation of early supported discharge for stroke. Stroke, 31(5), pp.1016-1023.

Muus, I. and Ringsberg, K.C., 2005. Stroke Specific Quality of Life Scale: Danish adaptation and a pilot study for testing psychometric properties. Scandinavian journal of caring sciences, 19(2), pp.140-147.

Obembe, A., Mapayi, B., Johnson, O., Agunbiade, T. and Emechete, A., 2013. Community reintegration in stroke survivors: Relationship with motor function and depression. Hong Kong Physiotherapy Journal, 31(2), pp.69-74.

Obembe, A.O., Johnson, O.E. and Fasuyi, T.F., 2010. Community reintegration among stroke survivors in Osun, southwestern Nigeria. African Journal of Neurological Sciences, 29(1), pp.9-16.

Odetunde, M.O., Odole, A.C., Odunaiya, N.A., Odetunde, N.A., Okoye, E.C., Mbada, C.E., Umunnah, J.O. and Akinpelu, A.O., 2020. Cross-cultural adaptation and validation of the Igbo language version of the stroke-specific quality of life scale 2.0. The Pan African Medical Journal, 37.

Okonkwo, U.P., Ibeneme, S.C., Ihegihu, C., Ezema, I.C., Okoye, E.C., Egwuonwu, V.A., Ekechukwu, E.N. and Azubike, O., 2018. Stroke Severity Variations in a 12 Month Prospective Study Involving Sub-acute Ischemic Stroke Survivors With and Without Cognitive Impairment in Nnewi, Nigeria. Asian Journal of Research and Reports in Neurology, pp.1-12.

Okoye, E.C., Oyedum, S.O., Akosile, C.O., Onwuakagba, I.U., Ibikunle, P.O., Okonkwo, U.P. and Okeke, I.A., 2019. Cross-cultural adaptation and validation of the reintegration to normal living index into IGBO language among individuals with mobility disability. Journal of patient-reported outcomes, 3(1), pp.1-13.

Owolabi, M.O., Platz, T., Good, D., Dobkin, B.H., Ekechukwu, E.N. and Li, L., 2020. Translating Innovations in Stroke Rehabilitation to Improve Recovery and Quality of Life Across the Globe. Frontiers in Neurology, 11.

Panella, M., Marchisio, S., Barbieri, A. and Di Stanislao, F., 2008. A cluster randomized trial to assess the impact of clinical pathways for patients with stroke: rationale and design of the Clinical Pathways for Effective and Appropriate Care Study [NCT00673491]. BMC health services research, 8(1), pp.1-8.

Pang, M.Y., Lau, R.W., Yeung, P.K., Liao, L.R. and Chung, R.C., 2011. Development and validation of the Chinese version of the Reintegration to Normal Living Index for use with stroke patients. Journal of rehabilitation medicine, 43(3), pp.243-250.

Pollack, M.R. and Disler, P.B., 2002. 2: Rehabilitation of patients after stroke. Medical journal of Australia, 177(8), pp.444-456.

Sander, A.M., Clark, A. and Pappadis, M.R., 2010. What is community integration anyway?: defining meaning following traumatic brain injury. The Journal of head trauma rehabilitation, 25(2), pp.121-127.

Slattery, K., 2010. The Igbo people: Origins and history. MA degree in modern literary studies: Queens's University, Belfast.

Smajlović, D., Strokes in young adults: epidemiology and prevention. Vasc Health and Risk Manag. 2015; 11: 157-64.

Strahan, T.E. and Bauer, L., 2009. The Linguistics Student's Handbook. Nordic Journal of Linguistics, 32(1), p.165.

Wood-Dauphinee, S. and Williams, J.I., 1987. Reintegration to normal living as a proxy to quality of life. Journal of chronic diseases, 40(6), pp.491-499.

Yu, D.S., Lee, D.T. and Woo, J., 2004. Issues and challenges of instrument translation. Western journal of nursing research, 26(3), pp.307-320.

Zimmermann-Schlatter, A., Schuster, C., Puhan, M.A., Siekierka, E. and Steurer, J., 2008. Efficacy of motor imagery in post-stroke rehabilitation: a systematic review. Journal of neuroengineering and rehabilitation, 5(1), pp.1-10.